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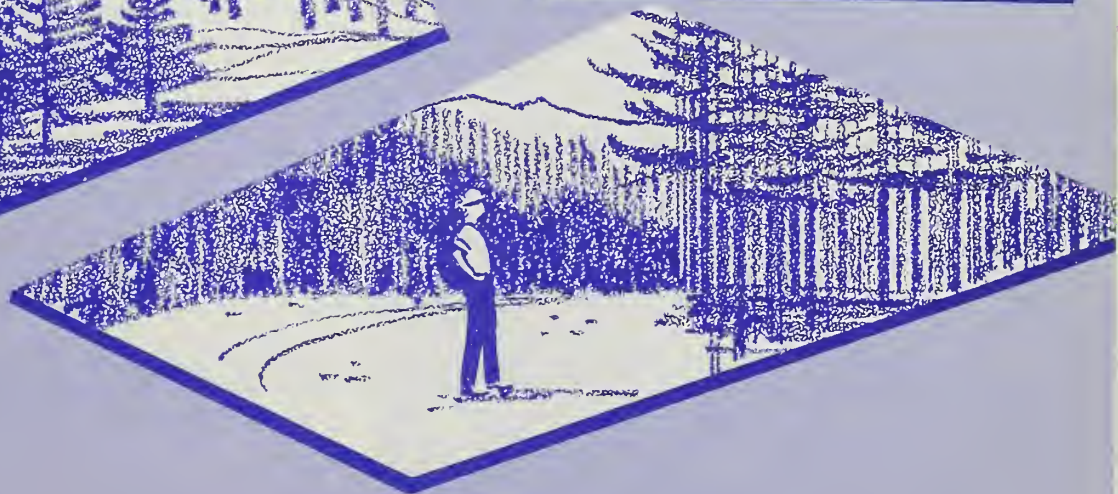
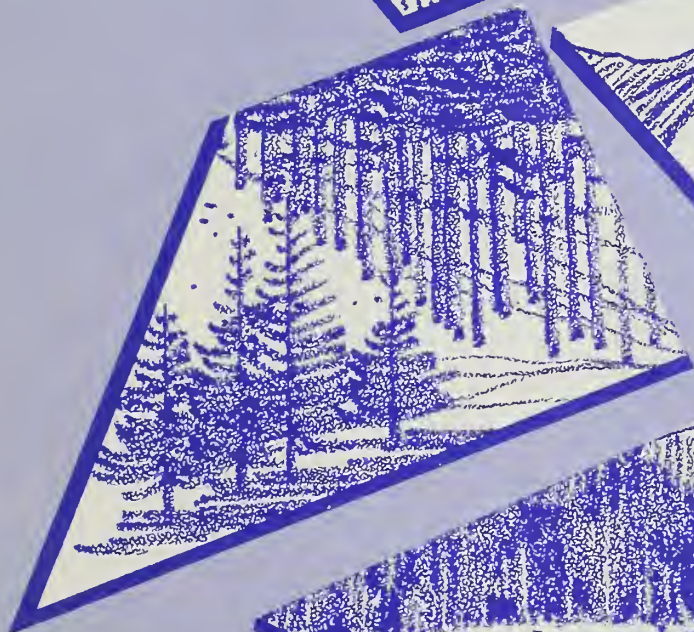
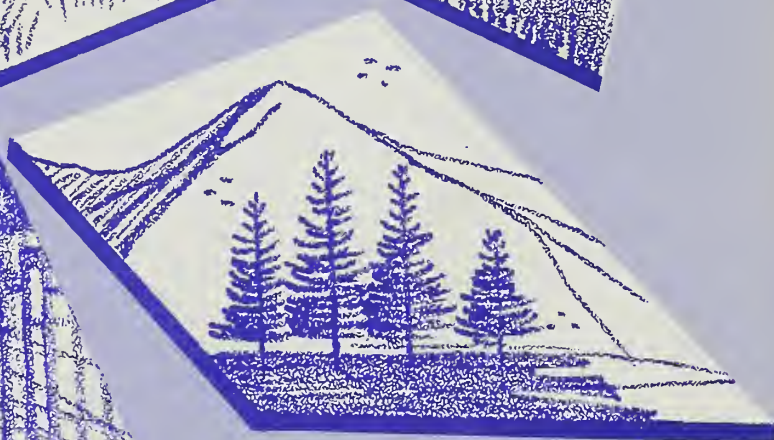
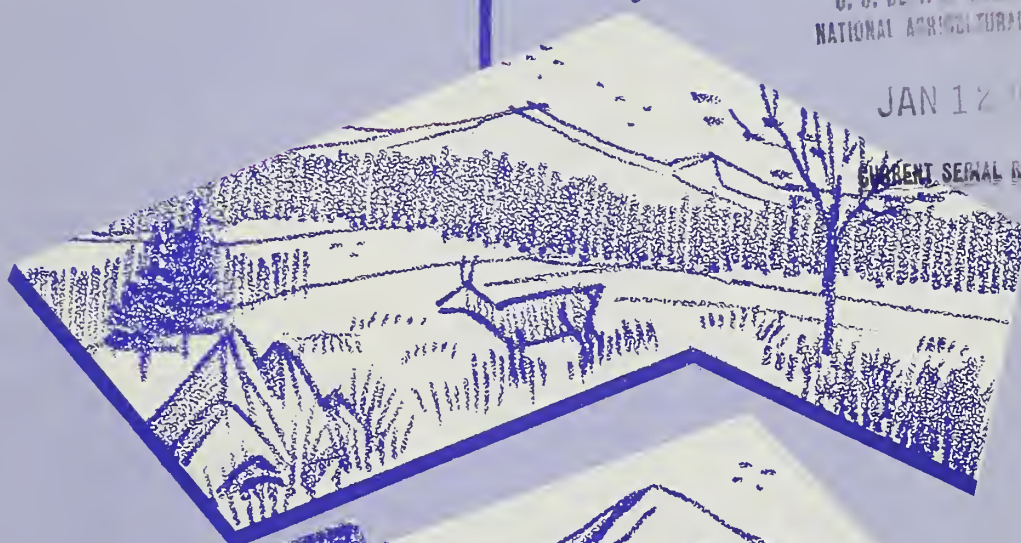
Forest Patterns

Beauty and Use

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"... there often must be a drastic, even violent upheaval to create new forests. It can come naturally—and wastefully—without rhyme or reason as it has in the past, through fires, hurricanes, insects, and other destructive agents. Or it can take place on a planned, purposeful, and productive basis."

Edward P. Cliff

Note: This publication is based on a visual presentation, "Forest Patterns—Beauty and Use," at the 36th Annual Convention of the National Council of State Garden Clubs, Portland, Oreg., May 25, 1965.

Issued December 1965

Forest Patterns— Beauty and Use

Edward P. Cliff, Chief
Forest Service
U.S. Department of Agriculture

An Appeal to Reason

Some logging practices both on National Forests and private land, particularly in the West, have aroused strong opposition from certain public groups concerned about preservation of natural outdoor beauty. Most of this stems from the temporary loss of natural beauty that sometimes occurs when mature timber is harvested. This has become a serious problem to those of us who are responsible for the intelligent management of our Nation's forest resources. People who voice criticism of such harvesting practices often do not realize nor clearly understand that there is sound reasoning for them—particularly for the so-called "patch cutting."

As "Chief Gardener" of the National Forest System, I want to present this story about some of the patterns of forest management, about the beauty of forests and how they are used, and about landscape gardening on a massive scale. It is an urgent and sincere appeal for greater public understanding of the role of forests and foresters in today's society.



A Heritage of Natural Beauty

President and Mrs. Johnson have stimulated a new, long-needed emphasis on natural beauty throughout the Nation. My wife and I deeply share this feeling as we work in and enjoy our flower garden at home. The quest for beauty and the call to arms for action to promote and protect our God-given natural beauty have struck a responsive chord in all of us in the Forest Service.

Fortunately, natural beauty abounds throughout our land as well as in our own backyards. Some of America's outstanding scenery is within the National Forests, spread across this great country from coast to coast and from Alaska to Florida.

There is rare beauty in the timbered slopes of these public forests, in their lakes and clear-flowing streams, and in their rugged peaks. The patterns of forest beauty you can find in the National Forests are virtually endless.

You don't have to be a timberman to see beauty in tall, clean, fast-growing pine or spruce trees, or in majestic old redwood veterans. And the oldest living things on earth—the 4,000-year-old bristlecone pines—generate a sense of awe in all who view them.

The wilderness areas of the National Forests also span the ages with their unique brand of wild beauty. It is part of our public trust to maintain undisturbed these often spectacular combinations of forest and rangeland, rocks and lakes, ice and snow.

The wilderness story is a fascinating one. But this story is about our commercial forest lands, lands where timber harvesting is allowed under careful supervision.

Gardening on a Grand Scale

Our task as resource managers involves more than passive enjoyment of the beauty of these lands we administer. We practice landscape gardening on a monumental scale. We combine the skills of the landscape architect, soil scientist, geneticist, engineer, botanist, nursery technician, and dozens of other highly trained specialists.

Our toolsheds bulge with equipment ranging from the usual rakes and shovels to large modern machines designed to mulch and seed roadbanks in one operation. Instead of a flit gun we use back pumps and spray-planes to control forest pests. Instead of clipping or pulling unwanted stems, as you do in small gardens, we may inject a chemical to do the job. Instead of pruning with shears, we use saws.

Instead of garden paths, we have almost 200,000 miles of travel ways, ranging from rough access roads to modern forest highways, and some 100,000 miles of trails.

"Some of America's outstanding scenery is within the National Forests . . ."

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F-499318

"Instead of pruning with shears, we use saws."



F-504211

"Instead of a flit gun—a spray plane."



F-505687

"Instead of birdbaths, we build ponds for the wild creatures."

Instead of birdbaths, we build ponds for the wild creatures of the forest.

The Enemies We Battle

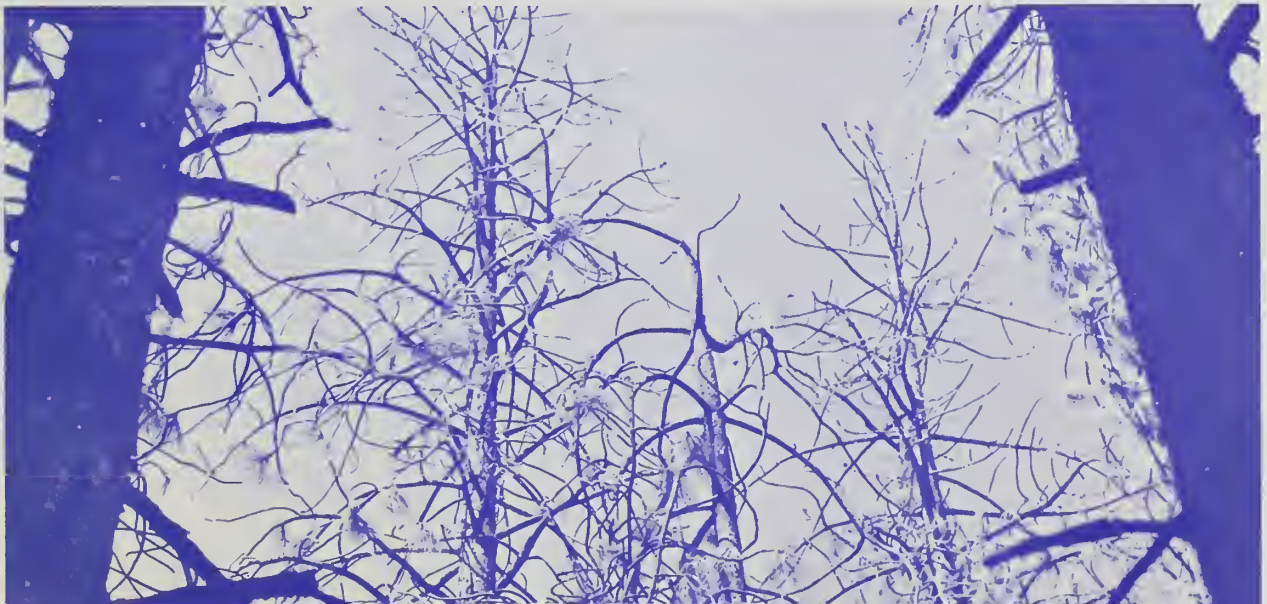
One of our biggest and toughest jobs is to protect the forest. I am proud of the fact that our men have greatly reduced the average size

of wild fires by prompt detection and attack, using modern methods and equipment.

We battle other enemies of the forest: insects and disease that can be as devastating as fire; animal and flood damage, windthrow, and erosion. Protection is a never-ending job.

"Insects and disease can be as devastating as fire."

F-509678





Many old burns are being restored to beauty and use.

F-84100, F-241316

Restoring Beauty and Utility to the Land

Our responsibilities include reforesting abandoned fields, burned-over areas, and other lands. We plant seedlings by hand or with tree-planting machines. Sometimes we coat the tree seeds with rodent repellents and sow them by helicopter . . . If all goes well, a new forest is soon on its way.

We feel reasonably confident that disastrous fires like the historic ones of the early 1900's are a thing of the past. Our tree planting efforts on these old burns have been highly successful and new forests are now well established, productive, and beautiful.

Today's task of rehabilitating damaged forest land is often equally difficult. Strip-mined areas in particular present a real challenge. Here, our research has shown that much can be done, and we are beginning to heal the scars of these lands that breed erosion and acid pollution.

However, in your National Forests, our management job is more than protection, and more than simply landscape gardening on a grand scale.

Research has shown the way to heal the scars on strip-mined lands that once bred erosion and acid pollution.

F-495410



A Storehouse of Wood

The National Forests must supply timber for many wood-using industries that produce the material for homes, paper, furniture, and countless other products upon which we all depend.

Like the cut flowers we take from our gardens when they are ready for use, the mature trees in the National Forests are harvested for use. This is a big business. Almost one-fourth of the wood used by American industry comes from the National Forests. The harvest of timber not only helps to meet the needs of consumers—like you and me—it also provides the jobs and economic base so essential to the very existence of many, many communities.

Economic strength in our rural communities means good schools and churches for our people, and prosperity on Main Street. It contributes to a healthy Nation.



F-499264

"Almost one-fourth of the wood used by American industry comes from the National Forests. The harvest of timber . . . provides jobs and economic strength for many rural communities."

The public needs to understand what goes on in the forest as this indispensable raw material—timber—is harvested.

"When we harvest overmature, defective timber that would otherwise be wasted, there is bound to be a temporary loss of natural beauty."

F-483099



Different Treatment for Different Forests

For many years foresters in this country preached the virtues of "selective" cutting. Where this system is practical, we may find mature trees more than 100 years old growing next to saplings or very young trees; a mixture of all ages is fairly typical. Here, individual trees are logged when they reach maturity. The younger trees already in place continue their growth, and the beauty and productivity of the forest go on. This system is often used where recreation and esthetic values are dominant.

In most forests, however, the trees are approximately the same age. Since they became established at about the same time, they reach maturity at the same time, and are ready for harvest at the same time.

There is a variety of ways in which forests become established. Sometimes new forests spring up naturally from the seed of parent trees along the edges of the openings. New hardwood forests sprout up after clearcutting and burning. Sometimes leaving a few seed-trees per acre will result in a fully stocked new forest.

To germinate and grow, however, the seeds of many of our most important tree species require the warmth of direct sunlight and a bed of bare mineral soil. This is especially true of Douglas-fir. This species, and others like it, cannot be established and cannot survive in the cool shade of a heavily carpeted forest floor.

So there is little choice but to clearcut areas large enough to meet the particular needs of Douglas-fir and other sunlight demanding

Left: Selection cutting is possible in stands of shade-tolerant species such as sugar maple. Right: Seedlings of Douglas-fir, and other intolerant species, cannot be established and cannot survive without a bed of bare mineral soil and the warmth of direct sunlight. "Patch cutting" is designed to meet these particular needs.

F-401469

F-384567



species. Economics enters the picture, too. Where road construction costs are high, logging is not feasible unless timber is harvested in blocks.

The planned, scientific, and systematic harvest of timber is the pattern of forest management at the heart of this story. We call it "patch cutting."

Patch Cutting—Planned, Purposeful, Productive

Patch cutting is something like an urban renewal project, a necessary, violent prelude to a new housing development. When we harvest overmature, defective timber that would otherwise be wasted, there is bound to be a temporary loss of natural beauty. But there is also the promise of what is to come: a thrifty new forest replacing the old.

The point is that there often must be a drastic, even violent upheaval to create new forests. It can come naturally—and wastefully—without rhyme or reason as it has in the past, through fires, hurricanes, insects, and other destructive agents. Or it can take place on a planned, purposeful, and productive basis.

There are other interesting comparisons. Patch cutting of timber is much like growing crops—but we measure time in decades instead of months. A forest "field" with its crop recently harvested is really not very different from a farm field. Just as the understanding eye sees beauty in the various scenes on a well-managed farm, there is beauty in seeing and understanding a productive forest at work.

The Harvest—and What Happens After

The events that take place in a patch-cutting operation are an essential part of the story. Step by step, this is the sequence: The trees are felled within the area selected by the forester. Then they are cut into logs. A central "spar"

tree is rigged and used by a "donkey" engine to pull logs to the landing. Here the logs are loaded and trucked to the mill.

The amount of unusable material left on the ground is often so great that there is little room for seedlings. So this cull material usually must be burned under careful supervision.

Fortunately the scars are rapidly healed. Many patches go through colorful stages as new plants take over. It is not long before seedlings of the new forest begin to replace their more colorful temporary associates.

Sometimes we must give nature a helping hand. Through genetics research we are developing seeds that will yield better, faster-growing, disease-resistant trees. For example, we have produced Douglas-fir cones at one of our seed orchards from parent material grafted only 3 years earlier. It takes a real "green-thumb" gardener to do this!

Seeds are extracted from the cones and are sown to produce seedlings and transplants. Each year we grow more than 100 million trees in Forest Service nurseries. A lot of planting still must be done the hard way—by hand, although planting machines are used to speed the work wherever possible. Quite often we must prepare the site just as you and I cultivate the soil in our backyard gardens.

Germany's famous Black Forest has been "patch cut" for 600 years and still remains productive and beautiful. Light areas show very young trees; dark areas, alder stands.

PHOTO FROM COLOR SLIDE—COURTESY GERMAN EMBASSY



The New Forest Takes Form

Before long, the new trees are visible to passers-by and the green carpet is re-established. After 10 years of sunshine and rain, a new Douglas-fir forest is well on its way. Add 30 years more and the trees will tower far above a man's head. By the time they are 60 years old, they begin to resemble trees in the original forest.

At 80 years, the cycle is nearly completed. When the timber is mature and the time is right, a new crop will be harvested and the dynamic, shifting pattern of management will go on.

Next time *you* view a forest panorama from your car window, or from an airplane, see for yourself the patterns of progressive harvests and reforestation.

This Is an Old, Old Story

This is an old story in Europe. Foresters over there have produced sustained yields for centuries using the same management practices we employ. They burn the slash and till the soil—just as we do. Their machinery may be different but the results are the same. Over there, all trees have pedigrees and they grow into forests that are both productive and beautiful, in every sense of those two words.

In the world-famous Black Forest of Germany, a forest renowned for its beauty, this

cycle has been repeated over and over again. Generations of foresters have managed those lands and resources continuously for more than six centuries.

New Life and Beauty in the Openings

To come back home, patch cutting in the Northwest has many fringe benefits. The wild flowers that grow in the openings would look beautiful in any home garden; the calypso orchid, foxglove, and the flaming vine maple are frequently pioneer members of the clearcut community.

Some people put their bees to work on the clearcut patches. Many forms of wildlife find these forest openings attractive. Deer, bear, and elk seek the warmth of the morning sun in the openings and find a variety of foods on the menu offered by typical forest openings.

There is so much natural beauty in the National Forests that no one needs to look far to find scenic delights. From the panoramas of mountain peaks and lakes to the play of sunlight and shadow on the forest floor, there are many elements of wild and untamed natural beauty. This is the obvious kind of beauty, evident to all.

But there is beauty as well, reflected in the orderly renewal of the forest. The patterns of management represented by the patch-cutting harvests guarantee that future generations

The trees grow back.

5 years

F-512892, F-509304

12 years

40 years

F-512893, F-512894

80 years





F-483488

Deer and other wild animals seek the warmth of the sun.



F-512896

Natural beauty has many faces.

of Americans will never want for timber or natural beauty in this great country of ours.

A Pattern for Understanding

What I have said here about forest management, and beauty, and productive use, has far wider implication than in the National Forests alone. My words apply as well to millions of acres of forest landscape in other ownerships.

The Forest Service is determined to act with as much skill and with as much understand-

ing of the multiple values of forest resources as we possibly can. We are confident that our professional colleagues, in the industrial, State, and other organizations share this determination.

But determination on the part of professional forest managers is not enough. We need the understanding and support that comes from an informed public. This story must be told and retold so that people everywhere will recognize and comprehend the forest patterns they see in America today.



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The Forest Service, U.S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.